USER'S MANUAL

MODEL：

MIG-160PI/MIG-180PI /MIG-200PI/MIG-250PI

Safety Caution！

On the process of welding, there will be any possibility of injury, so please take protection into consideration during operation. More details please review the Operator Safety Guide, which complies with the preventive requirements of the manufacturer

Electric shock——may lead to death ！！

- Set the earth fitting according to applying standard.
- It is forbidden to touch the electric parts and electrode when the skin is naked, wearing wet gloves or clothes.
- Make sure you are insulated from the ground and the workshop.
- Make sure you are in safe position.

Gas——may be harmful to health!

- Keep your head out of the gas.
- When arc welding, air extractor should be used to prevent from breathing gas.

Arc radiation——Harmful to your eye and burn your skin.

- Use suitable helmet and light filter, wear protective garment to protect eye and body.
- Use suitable helmet or curtain to protect looker-on.

Fire

- Welding spark may cause fire, make sure the welding area no tinder around.

Noise——extreme noise harmful to ear.

- Use ear protector or others means to protect ear.
- Warn that noise harmful to hearing if looker-on around.

Malfunction——When trouble, count on the professionals

- If trouble in installation and operation, please follow this manual instruction to check up.
- If fail to fully understand the manual, or fail to solve the problem with the instruction, you should contact the suppliers or our service center for professional help.

About the machine

The welding machine is a rectifier adopting the most advanced inverter technology.

The development of inverter gas-shielded welding equipment profits from the development of the inverter power supply theory and components. Inverter gas-shielded welding power source utilizes high-power component IGBT to transfer 50/60HZ frequency up to 100KHZ, then reduce the voltage and commutate, and output high-power voltage via PWM technology. Because of the great reduce of the main transformer's weight and volume; the efficiency increases by 30%. The appearance of inverter welding equipment is considered to be a revolution for welding industry.

CO2 shielded welding equipment adopts the most advanced inverter technology by our. Inside of the machine is equipped with electronic reactor circuit which can accurately control the process of the electric short transition and blending transition and result excellent welding characteristic. Comparing with synergic welding machine and other machine, it has the following advantages: stable wire speed, compact, power saving, no electromagnetic noise. Continuous and stable operation with small current, especially suitable for welding sheet of low-carbon steel, alloyed steel and stainless steel. Automatic voltage pulsation compensation capability, small sparkle, good arcing, uniform welding pool, high duty cycle and so on.

Thanks for purchasing product and hope for your precious advice. We will dedicate to produce the best products and offer the best service.

CAUTION!

The machine is mainly used in industry. It will produce radio wave, so the worker should make fully preparation for protection.

PARAMETERS

Model	MIG-160PI	MIG-180PI	MIG-200PI	MIG-250PI
Power Vol.（V）	1 phase 220V±15%	1 phase 220V±15%	1 phase 220V±15%	1 phase 220V±15%
Frequency（HZ）	50/60	50/60	50/60	50/60
Rated input current（A）	20.2	23.8	27.6	38
Output current （A）	50-160	50-180	50-200	50-250
Output Vol. (V)	16.5-22	16.5-23	16.5-24	16.5-26．5
Duty cycle（%）	60	60	60	60
Power factor	0.93	0.93	0.93	0.93
Efficiency（%）	85	85	85	85
Wire machine	Compact	Compact	Compact	Compact
Wire speed（m / min）	2.5-13	2.5-13	2.5-13	2.5-13
Post puff （S）	1	1	1	1
wire wheel diamete （mm）	150	150	150	150
Wire diameter（mm）	0.8/1.0	0.8/1.0	0.8/1.0	0.8/1.0
Housing shielding grade	IP21	IP21	IP21	IP21
Insulation grade	F	F	F	F
suitable thickness(mm）	0.8above	0.8above	0.8above	0.8above
Weight （kg）	18	18	19	19
Dimension (mm)	540×255×415	540×255×415	540×255×415	540×255×415

Installment

The welding equipment is equipped with power voltage compensation set. When power voltage changes between±15% of rated voltage, it still works normally.

When using long cable, in order to minimize the reduce of voltage, big section cable is suggested. If the cable is too long, it will affect the performance of arcing and other system function, so stated length is suggested.

1、Make sure the intake of the machine is not covered or blocked to prevent the malfunction of the cooling system.

2、Use earth cable that the section no less than 6mm^2 to connect the housing and earth, the method is from the connection in the back of the machine to the earth set, or make sure the earth end of power switch reaches the earth. Both ways can be used for better security.

Installment:

1) Connect the gas flask with CO2 decompression flow meter and the CO2 mouth behind the machine via gas cable.

2) Insert the swift plug of earth cable into the swift socket in the front panel.

3) Set the wire wheel with wire on the wheel axis, the wheel hole should be matched with the wheel fixer.

4) Choose wire slot according to wire size.

5) Loosen the screw of wire-pressing wheel, put the wire into slot via wire-lead tube, tune the Wire-pressing wheel to fix wire from gliding,but pressure should be suitable in case the wire distorts and affects wire sending.

6) Wire roll should turn clockwise rotation to let out wire, to prevent wire from gliding, wire is usually set to the fixed hole on the wheel side. To prevent the bent wire from getting stuck, please cut off this part of the wire.

7) The MIG torch has been setted inside of the machine just need put the wire into the torch by hand.

Operation

1、 Put the air switch to “ON” position, open the valve of CO2 cylinder and adjust the flow.

2、 Adjust the wire diameter of the wire machine to rated number according to wire diameter.

3、 Choose torch loophole span based on wire diameter.

4、 Tune the voltage knob,speed knob and inductance knob to the right position based on the thickness of the work piece and mechanics.

5、Press the torch switch to let out the wire to the torch head and begin to work.

Front panel sketch：

MMA-160PI

The panel picture above is for reference only

. If any difference with the real machine, please follow with the real machine.

NOTES OR PREVENTIVE MEASURES

1、Environment

1）The machine can perform in environment where conditions are dry with a dampness lever of max 90%.

2）Ambient temperature is between 10 to 40 degrees centigrade.

3）Avoid welding in sunshine or dripaings.

4）Do not use the machine in environment where condition is polluted with conductive dust on the air or corrosiveness gas on the air.

5）Avoid gas welding in the environment of strong airflow.

2、Safety norms

The welding machine has installed protection circuit of over voltage and current and heat. When voltage and output current and temperature of machine are exceeding the rate standard, welding machine will stop working automatically. Because that will be damage to welding machine, user must pay attention as following.

1）**The working area is adequately ventilated！**

The welding machine is powerful machine, when it is being operated, it generated by high currents, and natural wind will not satisfy machine cool demands. So there is a fan in inter-machine to cool down machine. Make sure the intake is not in block or covered, it is 0.3 meter from welding machine to objects of environment. User should make sure the working area is adequately ventilated. It is important for the performance and the longevity of the machine.

2）**Do not over load！**

The operator should remember to watch the max duty current (Response to the selected duty cycle).

Keep welding current is not exceed max duty cycle current.

Over-load current will damage and burn up machine.

3）**No over voltage！**

Power voltage can be found in diagram of main technical data. Automatic compensation circuit of voltage will assure that welding current keep in allowable arrangement. If power voltage is exceeding allowance arrangement limited, it is damaged to components of machine. The operator should understand the situation and take preventive measures.

4）There is a grounding screw behind welding machine, there is grounding marker on it Mantle must be grounded reliable with cable which section is over 6 square millimeter I order to prevent from static electricity and leaking.

5）If welding time is exceeded duty cycle limited, welding machine will stop working for protection. Because machine is overheated, temperature control switch is on "ON'' position and the indicator light is red. In this situation, you don't have to pull the plug, in order to let the fan cool the machine. When the indicator light is off, and the temperature goes down to the standard range, it can weld again.

QUESTIONS IS BE RUN INTO IN WELDING

Fittings, welding materials, environment factor, supply powers maybe have something to do with welding. User must try to improve welding environment.

A、Arcing-striking is difficult and easy to pause：

1) Make sure the earth cable clincher connects the work piece well.

2) Check each connecting point connected or not.

B、Output current can not reach rated volume：

That supplied voltage is different from the rated will lead to unconformity of the output current and the adjusted current. When Supplied voltage lower than the rated, the max output current will be lower than the rated.

C、Current is not stabilizing when machine is been operating.

It has something with factors as following:

1) Electric wire net voltage has been changed；

2) There is harmful interference from electric wire net or other equipment。

D Welding gap has air hole.

1) Check the gas supply loop leaks or not.

2) Surface of mother material has oil, stain, rust, lacquer or other impurity.

MAINTENANCE

CAUTION：

Before Maintenance and checking, power must be turned off, and before Opening the housing, make sure the power plug is pulled off..

1、 Remove dust by dry and clean compressed air regularly, if welding machine is operating in environment where is polluted with smokes and pollution air, the machine need remove dust everyday.

2、 Pressure of compressed air must be inside the reasonable arrangement in order to prevent damaging to small components of inter-machine.

3、 Check inter circuit of welding machine regularly and make sure the cable Circuit is connected correctly and connectors are connected tightly (especially insert connector and components). If scale and loose are found, please give a good polish to them, then connect them again tightly.

4、 Avoid water and steam enter into inter-machine, if them enter into machine, Please dry inter-machine then check insulation of machine.

5、 If welding machine will not be operated long time, it must be put into packing Box And store in dry environment.

6、When wire machine operates for every 300 hours, the electric carbon brush and armature rectifier should be polished, the reducer should be cleaned, and lubricator should be added to the turbo and bearing.

CHECK FAULT

Notes: If user wants to operate machine as following, the operator must be a personnel in a specific field of electricity and safety and hold the relevant certificate that proves there ability and knowledge. Before maintenance, contact with our for authorization is suggested.

Faults	Resolvable Method
Power indicator is not lit, fan does not work and no welding output	1、Make sure air switch is closed. 2、Check if electric wire net is in work. 3、Some of heat-variable resistors(four) of power panel is Damaged, when it happen, general DC24v relay is open or Connectors are poor contact. 4、Power panel(bottom board) is damaged, DC 310V voltage Cannot be output. (1) Silicon bridge is broken or connector of silicon bridge Poor contact. (2) Power panel has been burned up. (3) Check the wire from the power switch to input cable is poor contact or not 5、Auxiliary power of control panel is in fault.
Power indicator is lit, fan works, no welding output	1、Check if all kinds of cables of inter-machine are poor contact. 2、Output connector is cut off or poor contacted. 3、Control cable or switch of torch is broken. 4、Control circuit is broken.
Power indicator is lit, fan works, abnormal indicator is lit.	1、Maybe it is overheated protection, please turn off machine first, then turn on the machine again after abnormal indicator is off. 2、 Maybe it is overheated protection, wait for 2-3 minutes. 3、 Maybe inverter circuit is in fault: (1) If abnormal indicator is still lit, some of IGBT is damaged on the main board, find out and replace it with same model. (2) If abnormal indicator is not lit,: a. Maybe transformer is damaged, measure inductance volume and Q volume of main transformer by inductance bridge. b. Maybe secondary rectifier tube of transformer is damaged, find out faults and replace rectifier tube with it.

If the machine fails to work normally after maintenance and check, please contact us.We will do our best to support you the useful suggestions.

CHECK FAULTS

When abnormal situation such as failure of welding, unstable arc, poor welding result, do not consider that it must be some faults.

The machine may be well but just some reasons cause abnormality such as that some connectors are loosened, forget to turn on the switch, wrong setting, broken cable and gas pipe, etc. So before maintenance, Please check it up first, some problem may be solved.

The following is earlier checking diagram by this way. In the top right corner item you can find the problem, please check according to the diagram for the one with "O" mark.

EARLIER CHECKING DIAGRAM FOR THE ABNORMAL

Place and item to be checked / The abnormal		No arcing	No gas	Can not Send wire	Poor Arcing initiation	Unstable arc	Welding margin unclean	Wire and Material conglutinated	Wire links Electric leading hole fcon conglutinated	Have air hole
Power supply box （input protective set ）	1、connected or not 2、fuse broken 3、connector loosen	○	○	○	○	○	○			
Input cable	1、 Broken or not 2、 Connector loosen 3、overheat	○	○	○	○	○	○			
Power	1、 Switched or not 2、lack phase	○	○	○	○	○	○	○	○	
Gas cylinder&adjuster	1、open cover 2、remains of gas 3、flow setting volume 4、Connecting point loosen					○				○
Gas pipe (access from the high-pressure cylinder to torch)	1、 Connecting point loosen 2、 Pipe broken									○
Wire sending equipment	1、 Wheel and leading tube not match 2、 Wheel broken, slot blocked or lack 3、 Over pressing or loosen, powder store up in entrance of SUS tube			○	○	○	○		○	

DAILY CHECKING

WELDING POWER SUPPLY

Position	Checking keys	Remarks
Control panel	1.switch condition of operation, transfer and installment. 2.test the power indicator	
Cooling fan	1.check if there is wind and the sound normal or not.	If abnormal noise and no wind, to check the inner.
Power part	1.when electrified, abnormal smell or not. 2.when electrified, abnormal vibration and buzz or not. 3.color changing and heating or not in appearance.	
Periphery	1.gas pipe broken, loosen or not. 2.housing and other fixed parts loosen or not.	

WELDING TORCH

Position	Checking keys	Remarks
Loophole	1.If installment fixed, the front distorted	Reason for air hole.
	2.attach splash or not.	Reason for burning the torch. （can use splash-proof material ）
Electric hole	1.If installment fixed	Reason of torch screw thread damage
	2.damage of its head and hole blocked nor not	Reason of unstable arc and broken arc
Wire sending tube	1.check the extended size of the pipe	Have to be changed when less than 6mm, when the extended part too small, the arc will be unstable.
	2.wire diameter and the tube inner diameter match or not	Reason of unstable arc, please use the suitable tube.
	3.partial winding and extended	Reason of poor wires sending and unstable arc, please change.
	4.block caused by dirt in the tube, and the remains of the wire plating lay.	Reason of poor wire sending and unstable arc, (use kerosene to wipe or change new one.)
	5.wire sending tube broken O circle wear out	1.Pyrocondensation tube broken, change new tube 2.Change new O circle
Gas bypass	Forget to insert or the hole blocked, or different factory component.	May lead to vice (splash) because of poor gas shield, torch body get burned (arc in the torch), please handle.

DAILY CHECK

WIRE SENDING MACHINE

Position	Checking keys	Remarks
Pressing arm	1.If put the arm to the suitable indicating level. （notes：not to damage wire less than Φ 1.0mm ）	Lead to unstable arc and wire sending.
Wire Lead Tube	1.If powder or residue store up in the mouth of the tube.	Clean the residue and check the reason and solve it.
	2.Wire diameter and the tube inner diameter match or not	If not match, lead to unstable arc and residue.
	3.If the tube mouth center matches the wire wheel slot center or not.	If unmatched, lead to unstable arc and residue.
Wire wheel	1.Wire diameter matches the wheel's requirement 2.If the wheel slot blocked	1.Lead to unstable arc and residue, and block wire tube. 2.Change new one if necessary
Pressure wheel	Check the stability of its move, and wearing-out of pressed wire, the narrowing of its contact surface	Lead to unstable arc and wire sending.

CABLE

Position	Checking keys	Remarks
Torch cable	1.If torch cable over bended. 2.If the metal connecting point of mobile plug loosen	1. Cause poor wire sending 2.Unstable arc if cable over bended.
Output cable	1. Wearing-out of the cable insulated material. 2.Cable connecting head naked (insulation damage), or loosen (the end of power supply, and cable of main material connecting point.)	For life security and stable welding, adopt suitable method to check according to working place. ● Simple check daily ● Careful and in-depth check on fixed period
Input cable	1.If the connect of power supply input, protective equipment input and the output end fixed or not. 2.If the security equipment cable reliably connected. 3.If the power input end cable fixed 4.If the input cable is worn out and bares the conductor.	
Earth cable	1.If the earth cable that connects the power supply is broken and connect tightly. 2. If the earth cable that connects the main part is broken and connects tightly.	To prevent creep age and insure security, please make daily check.